AMENDMENTS TO THE CLAIMS

The following is a complete, marked-up listing of revised claims with a status identifier in parenthesis, underlined text indicating insertions, and strike through and/or double-bracketed text indicating deletions.

LISTING OF CLAIMS

1. (Currently Amended) A pore or particle-size distribution measurement apparatus for measuring size distribution of pores or particles existing within a porous insulator film formed on a surface of a substrate, comprising:

X-ray generating means for irradiating the insulator film with X-rays from the insulator film's surface side at an incident angle which is set to be larger than a total-reflection critical angle of the insulator film but less than 1.3 times a total-reflection critical angle of the ~~substance~~substrate; and

X-ray detecting means for detecting among reflection components reflected on the surface of the substrate of the X-rays which have been emitted from the X-ray generating means and have entered the insulator film, reflection components exiting from the insulator film after entering the pore or particle and scattering, having an exit angle larger than that of reflection components which exit from the insulator film without entering the pore or particle.

2. (Currently Amended) The pore or particle-size distribution measurement apparatus of claim 1, wherein the X-ray generating means is provided with:

a ~~linear~~ line focus X-ray tube; and

X-ray component selection means for allowing, of X-rays emitted from the X-ray tube, a parallel light flux composed of mutually-parallel components of a specific direction lying in a

specific wavelength band to enter the measurement target object at the ~~predetermined~~ incident angle,

and ~~that~~ wherein the X-ray detecting means is provided with:

a slit for passing therethrough only a specific-direction component of the X-rays coming from the measurement target object~~,~~; and

a position-sensitive X-ray detector for detecting the X-rays having passed through the slit.

3. (Currently Amended) The pore or particle-size distribution measurement apparatus of claim 1, wherein the X-ray generating means is provided with:

a point focus X-ray tube; and

X-ray component selection means for allowing, of X-rays emitted from the X-ray tube, an X-ray beam composed of specific-direction components which are mutually parallel and exist in a specific wavelength band to enter the measurement target object at the ~~predetermined~~ incident angle,

and ~~that~~ wherein the X-ray detecting means is provided with a position-sensitive X-ray detector for detecting the X-rays coming from the measurement target object.

4. (Currently Amended) The pore or particle-size distribution measurement apparatus of claim 2, wherein the X-ray detecting means is provided with a reflection X-ray blocking plate for preventing a specific specular reflection component from entering a detection surface of the position-sensitive X-ray detector, the specular reflection component being derived from the X-

rays which are reflected ~~on~~ from the surface of the substrate after having entered the insulator film and exited from the insulator film without entering the pore or particle.

5. (Currently Amended) The pore or particle-size distribution measurement apparatus of claim 1, wherein the X-ray generating means is provided with:

an X-ray generating source; and

X-ray converging means for allowing convergence and incidence of X-rays generated from the X-ray generating source onto the measurement target object at the ~~predetermined~~ incident angle,

and ~~that~~ wherein the X-ray detecting means is provided with a position-sensitive X-ray detector.

6. (Original) The pore or particle-size distribution measurement apparatus of claim 5, wherein the X-ray generating means is provided with an X-ray irradiation range regulatory plate that is arranged immediately above a position of incidence for the X-rays on the measurement target object at a predetermined spacing.

7. (Original) A pore- or particle-size distribution measurement apparatus for measuring size distribution of pores or particles existing within a porous insulator film formed on a surface of a substrate, comprising:

a point focus X-ray source for irradiating X-rays from the insulator film's surface side at an incident angle set to be larger than a total-reflection critical angle of an uppermost surface layer; and

a two-dimensional position-sensitive detector for detecting scattered X-rays.

8. (Currently Amended) The pore or particle-size distribution measurement apparatus of claim 3, wherein the X-ray detecting means is provided with a reflection X-ray blocking plate for preventing a specific specular reflection component from entering a detection surface of the position-sensitive X-ray detector, the specular reflection component being derived from the X-rays which are reflected ~~on~~ from the surface of the substrate after having entered the insulator film and exited from the insulator film without entering the pore or particle.

9. (New) A pore or particle-size distribution measurement method for measuring size distribution of pores or particles existing within a porous insulator film formed on a surface of a substrate, comprising:

irradiating the insulator film with X-rays from the insulator film's surface side at an incident angle which is set to be larger than a total-reflection critical angle of the insulator film but less than 1.3 times a total-reflection critical angle of the substrate; and

detecting among reflection components reflected on the surface of the substrate of the X-rays which have entered the insulator film, reflection components exiting from the insulator film after entering the pore or particle and scattering, having an exit angle larger than that of reflection components which exit from the insulator film without entering the pore or particle.

10. (New) The pore or particle-size distribution measurement method of claim 9, wherein the X-rays are generated by a line focus X-ray tube, and a parallel light flux, of the generated X-rays, composed of mutually-parallel components of specific direction lying in a

specific wavelength band is selected to enter the measurement target object at a predetermined incident angle,

and wherein only a specific-direction component of the X-rays coming from the measurement target object is allowed to pass through a slit, and the X-rays having passed through the slit is detected by a position-sensitive X-ray detector.

11. (New) The pore or particle-size distribution measurement method of claim 9, wherein the X-rays are generated by a point focus X-ray tube, and an X-ray beam, of the generated X-rays, composed of specific-direction components which are mutually parallel and exist in a specific wavelength band is selected to enter the measurement target object at the predetermined incident angle,

and wherein the X-rays coming from the measurement target object are detected by a position-sensitive X-ray detector.

12. (New) The pore or particle-size distribution measurement method of claim 10, wherein a specific specular reflection component is prevented from entering a detection surface of the position-sensitive X-ray detector by a X-ray blocking plate, the specular reflection component being derived from the X-rays which are reflected on the surface of the substrate after having entered the insulator film and exit from the insulator film without entering the pore or particle.

13. (New) The pore or particle-size distribution measurement method of claim 9, wherein the X-rays are generated by an X-ray generating source and the generated X-rays are

converged and made incident onto the measurement target object at the predetermined incident angle,

and wherein the X-rays are coming from the measurement target object are detected by a position-sensitive X-ray detector.

14. (New) The pore or particle-size distribution measurement method of claim 13, wherein an area of incident of the X-rays on the measurement target object is regulated by an X-ray irradiation range regulatory plate that is arranged immediately above a position of incidence at a predetermined spacing.

15. (New) A pore or particle-size distribution measurement method for measuring size distribution of pores or particles existing within a porous insulator film formed on a surface of a substrate, comprising the steps of:

irradiating X-rays generated by a point focus X-ray source from the insulator film's surface size at an incident angle set to be larger than a total-reflection critical angle of an uppermost surface layer; and

detecting scattered X-rays by a two-dimensional position-sensitive detector.

16. (New) The pore or particle-size distribution measurement method of claim 11, wherein a specific specular reflection component is prevented from entering a detection surface of the position-sensitive X-ray detector by a X-ray blocking plate, the specular reflection component being derived from the X-rays which are reflected on the surface of the substrate

after having entered the insulator film and exit from the insulator film without entering the pore or particle.

*** END CLAIM LISTING ***